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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,450	09/26/2005	Yoshikatsu Ichimura	03500.017986.	4632

5514 7590 01/22/2007  
FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
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ZHU, JOHN X

ART UNIT	PAPER NUMBER
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2858

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/550,450	Applicant(s) ICHIMURA ET AL.	
	Examiner John Zhu	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-13 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/23/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Response to communications filed on 10/23/2006.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 5-7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubby et al. (6,177,800) in view of Reggia (4,115,783).

With respect to claims 1 and 11-13, Kubby discloses an electric potential measuring device and method (see ABS., lines 1-3) comprising:

a signal detection electrode (30);

a movable structure (32) comprised of a first material portion (34) which transmits electric lines of force and a second solid material portion (36) which shields from electric lines of force; and

a drive mechanism (D) for moving the movable structure in such a way as to change a positional relationship of the first material portion (34) and second (36) solid material portion for the signal detection electrode (30),

wherein the first material portion is comprised of a dielectric (air, i.e. in the shutter opening), the second solid material portion is comprised of a conductive material (shutter 36 is a conductive plate in the movable structure 32 for detection), and a charge induced (see charge accumulation in FIG. 3) on the signal detection electrode (30) is modulated by moving the movable structure (by D), to measure an electric potential (V, see FIG. 2 and 3) of the object (42) to be measured.

Kubby does not disclose the first material portion as a solid material, but rather a gas (in the shutter opening). Furthermore, Kubby does not disclose the movable structure has no aperture.

However, it is common to replace an air gap dielectric with a solid material dielectric. For example, Reggia discloses using a solid material instead of air as a dielectric material (Column 2, lines 36-40).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kubby to include the solid dielectric material instead of air gap of Reggia for the purpose of ruggedized the structure and for improved capacitive coupling.

With respect to claim 2, Kubby discloses the electric potential measuring device as applied to claim 1, above. Kubby further discloses the electric potential measuring device wherein said detection electrode (30) is formed on a substrate (18, see FIG. 1 and 3) disposed in opposition to the object to be measured (42, see FIG. 3), and said movable structure is periodically movable in a surface parallel to the substrate just above the surface of the object to be measured side of the detection electrode (see FIG. 3, wherein the sensor is moved parallel to the object 42 according to the arrow under the sensor assembly).

With respect to claim 5, Kubby discloses the electric potential measuring device as applied to claim 1, above. Kubby further-discloses the electric potential measuring device, wherein said second solid material portion (36) is periodically shaped in a predetermined direction (see periodic spacing as provided in FIG. 1 by width w), and said detection electrode (30) is formed in a shape having the same direction and the same periodic length as the second solid material portion (see FIG. 1 wherein electrode 30 is divided into portions 30a-30c each periodically shaped like portions 36).

With respect to claim 6, Kubby discloses the electric potential measuring device as applied to claim 5, above. Kubby further discloses the electric potential measuring device, wherein the electric

Art Unit: 2858

conductor layer (30) of a shape having the same direction and the same periodic length as the second solid material portion (36) is formed on a portion in which the detection electrode is not formed through an insulator layer (i.e. no insulator layer is present in Kubby ('800)).

With respect to claim 7, Kubby discloses the electric potential measuring device as applied to claim 6, above. Kubby further discloses the electric potential measuring device, wherein the shape of said detection electrode (30) has a divided structure (divided into portions 30a-30c), and is constituted such that a signal generated by each of the divided detection electrode can be independently measured and processed (at the output of line 38). Furthermore, it is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone.

With respect to claim 9, Kubby discloses the electric potential measuring device as applied to claim 1, above. Kubby further discloses the electric potential measuring device, wherein the movable structure is a sheet-shaped structure (i.e. the structure 32 is a planar shape, see FIG. 1).

With respect to claim 10, Kubby discloses the electric potential measuring device as applied to claim 1, above. Kubby further discloses an image forming apparatus (copier/printer 40), comprising the electric potential measuring device (V) according to claim 1 and an image forming means for performing a control of an image formation by using the electric potential measuring device (column 5, lines 5-12).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubby and Reggia as applied to claim 1 above, and further in view of Snelling (4,801,967).

With respect to claim 8, Kubby and Reggia disclose all aspects of the claim except for explicitly

Art Unit: 2858

stating the conductive material of the second solid material is grounded.

However, as the material is used as an electric line shield, it is well known in the art that shields are grounded. For example, Snelling discloses an electric line shield that is grounded (Fig 1, elements 12 and 14).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kubby to ground the second shield material as taught by Snelling for the purpose of protecting fields interference which would harm the measurement results.

*Allowable Subject Matter*

5. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: claim 3 is allowable over the art of record because the prior art does not teach or render obvious the entire combination including specifically an insulator layer formed on the detection electrode and an electric conductor layer of a shape having the same direction and the same periodic length as the second solid material portion is formed on the insulator layer

7. The following is a statement of reasons for the indication of allowable subject matter: claim 4 is allowable over the art of record because the prior art does not teach or render obvious the entire combination including specifically an electric conductor layer of a shape having the same direction and the same periodic length as the second solid material portion is formed on the detection electrode through an insulator, and no insulator layer exists in a part which the conductor layer is not formed but the signal detection electrode is exposed.

Art Unit: 2858

*Response to Arguments*

8. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Zhu whose telephone number is (571) 272-5920. The examiner can normally be reached on M-F, 8-4:30.

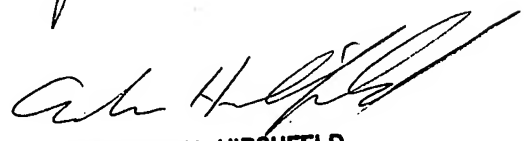
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Zhu  
Examiner  
Art Unit 2858



JZ



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